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10/743,522

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Takeshi Shibata

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EXAMINER

NGUYEN, KHIEM D

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 12/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/743,522	Applicant(s) SHIBATA ET AL.	
	Examiner Khiem D. Nguyen	Art Unit 2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 29-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 and 35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

HSIEN-MING LEE
PRIMARY EXAMINER

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/13/06.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

See
11/27/06

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 13th, 2006 has been entered. A new rejection is made as set forth in this Office Action. Claims (1-35) are pending in the application.

Information Disclosure Statement

2. The Information Disclosure Statement filed on October 13th, 2006 has been considered.

Claim Rejections - 35 USC § 103

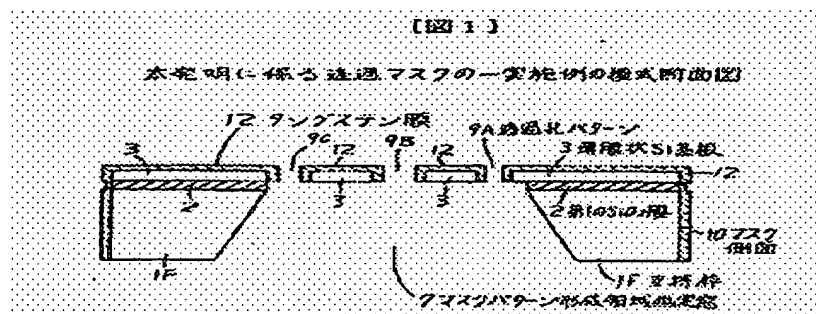
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

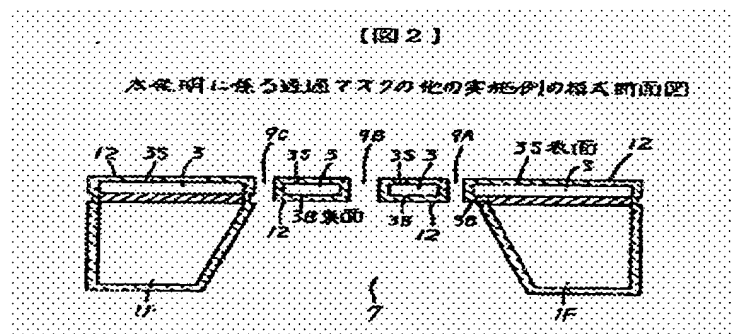
3. Claims 1-28 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoru et al. (Japan Publication 06-244091) in view of Kim (U.S. Patent 6,447,688).

In re claim 1, Satoru discloses a stencil mask comprising: a conductive thin film 3 (Si) having a plurality of first openings 9A-C;
an insulating film 2 (SiO₂) formed in a region of conductive thin film excluding the openings 9A-C (Detailed Description, page 3, paragraph [0021] and FIG. 1);

a conductive support 1f formed on the insulating film 2; and



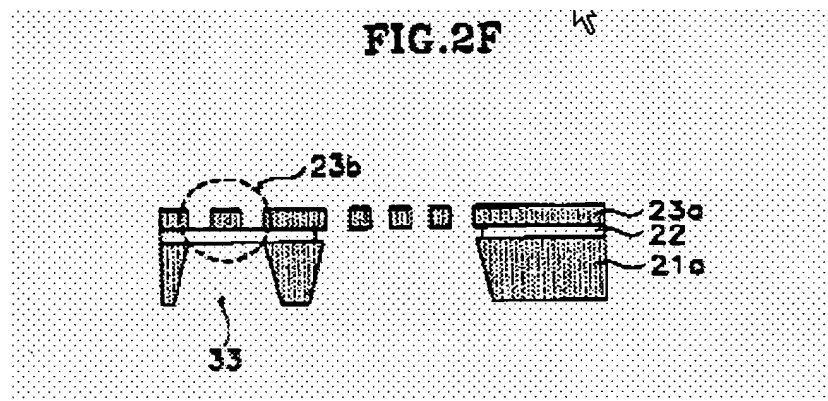
a conducting member 12 formed so as to replace a portion of the insulating film 2 and which connects the conductive support 1f and the conductive thin film 3 electrically (Detailed Description, pages 3-4, paragraph [0022] and FIG. 2), wherein one of the conductive thin film 3 and the conductive support 1f has a second opening 7 in which the conducting member 12 is formed.



Satoru discloses wherein one of the conductive thin film 3 and the conductive support 1f has a second opening 7 in which the conducting member 12 is formed (FIG. 2) but does not explicitly disclose wherein the second opening being positioned in a region excluding the plurality of first openings.

Kim, however, discloses a stencil mask comprising a conductive thin film 23a having a plurality of first openings; an insulating film 22 formed in a region of the conductive thin film 23a; a conductive support 21 formed on the insulating film 22,

wherein one of the conductive thin film and the conductive support has a second opening 33, the second opening being positioned in a region excluding the plurality of first openings (col. 3, line 35 to col. 4, line 14 and FIG. 2F).



Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Satoru and Kim to enable the second opening which is positioned in a region excluding the plurality of first openings of Satoru to be formed and furthermore to improve the quality and/or throughput of the stencil mask manufacturing process (Abstract, Kim).

In re claim 2, Satoru discloses that the electrical conductivity of the conducting member 12 (W) is equal to or higher than that of each of the conductive thin film 3 (Si) and the conductive support 1f (Si) (pages 3-4, paragraphs [0021]-[0022]).

In re claim 3, Satoru discloses that the conductive thin film 3 and the conductive support 1f are made of silicon (page 3, paragraph [0022]).

In re claim 4, Satoru discloses that the conducting member 12 is made of tungsten (W) (page 3, paragraph [0022]).

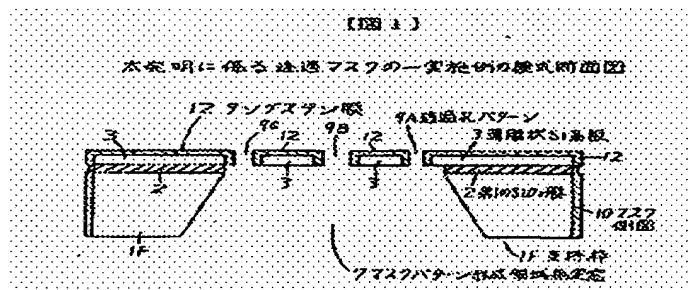
In re claim 5, Satoru discloses that the stencil mask according to claim 1, further comprising silicon or silicide formed on the surface of the conducting member (FIG. 2).

In re claim 6, Satoru discloses that the conducting member 12 is formed in the conductive support 1f (FIG. 2).

In re claim 7, Satoru discloses that the conducting member 12 is formed in the conductive thin film 3 (FIG. 2).

In re claim 8, Satoru discloses that the conducting member 12 is formed on and in the conductive thin film 3 (FIG. 2).

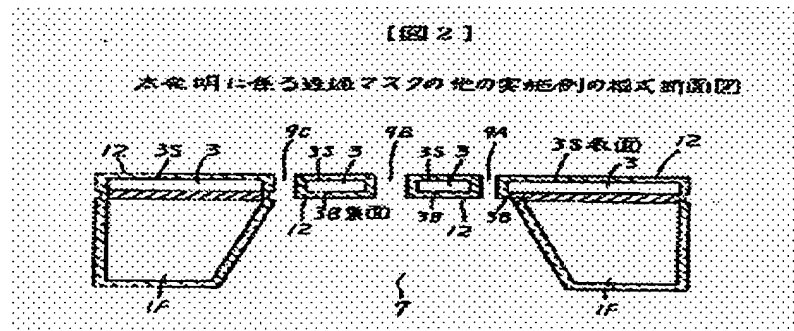
In re claim 9, Satoru discloses that a stencil mask comprising: a conductive thin film 3 (Si) having an inside region (middle region) and an outside region (peripheral region) outside the first region, the inside region including a plurality of first openings 9A-C so as to form a mask pattern, and the outside region being outside the mask pattern; an insulating film 2 (SiO₂) which is formed on the outside region on a first side of the conductive thin film 3 (Detailed Description, page 3, paragraph [0021] and FIG. 1);



a conductive support 1f which is formed on the insulating film 2;

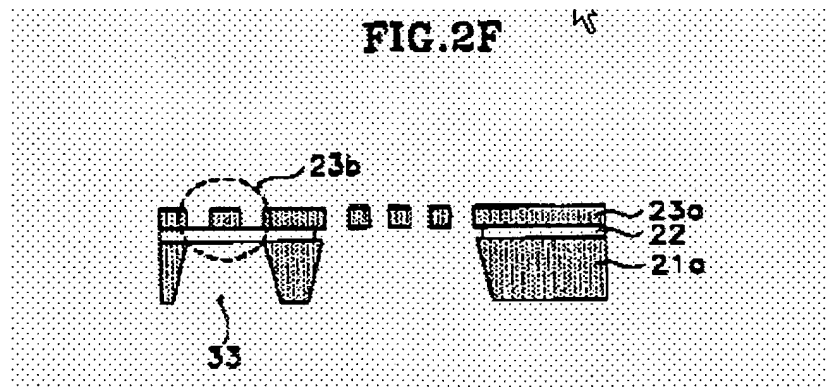
a second opening in the inside region formed in the conductive support 1f and the insulating film 2; a third opening 7 which is formed through the conductive support 1f and the insulating film 2 in a part of the second region; and a conducting member 12 which is provided in the third opening 7 and which connects the conductive thin film 3

and the conductive support 1f electrically (Detailed Description, pages 3-4, paragraph [0022] and FIG. 2).



Satoru discloses wherein one of the conductive thin film 3 and the conductive support 1f has a second opening 7 in which the conducting member 12 is formed (FIG. 2) but does not explicitly disclose a third opening in the outside region formed in the conductive support and the insulating film.

Kim, however, discloses a stencil mask comprising a conductive thin film 23a having a plurality of first openings; an insulating film 22 formed in a region of the conductive thin film 23a; a conductive support 21 formed on the insulating film 22, wherein one of the conductive thin film and the conductive support has a third opening 33 formed in the outside region, the second opening being positioned in a region excluding the plurality of first openings (col. 3, line 35 to col. 4, line 14 and FIG. 2F).



Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Satoru and Kim to enable the third opening which is formed in the outside region of Satoru to be formed and furthermore to improve the quality and/or throughput of the stencil mask manufacturing process (Abstract, Kim).

In re claim 10, Satoru discloses that the electrical conductivity of the conducting member 12 (W) is equal to or higher than that of each of the conductive thin film 3 (Si) and the conductive support 1f (Si) (pages 3-4, paragraphs [0021]-[0022]).

In re claim 11, Satoru discloses that the conductive thin film 3 and the conductive support 1f are made of silicon (page 3, paragraph [0022]).

In re claim 12, Satoru discloses that the conducting member 12 is made of tungsten (W) (page 3, paragraph [0022]).

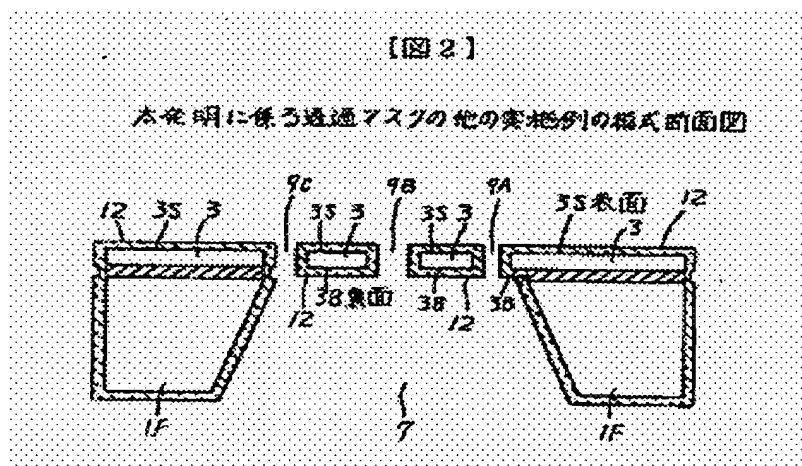
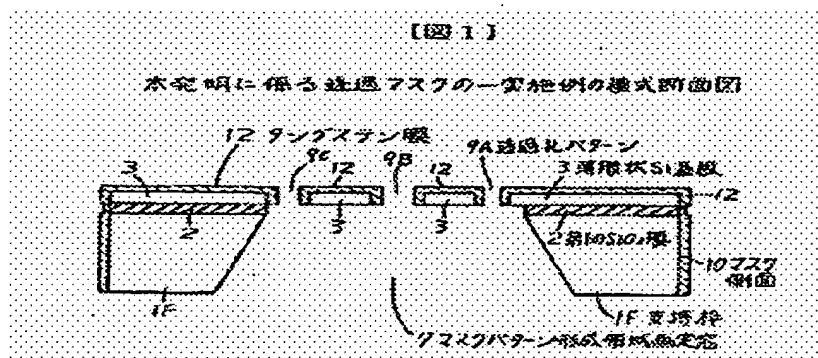
In re claim 13, Satoru discloses that the stencil mask according to claim 9, further comprising silicon or silicide formed on the surface of the conducting member (FIG. 2).

In re claim 14, Satoru discloses a stencil mask comprising: a conductive thin film 3 (Si) having an inside region (middle region) and an outside region (peripheral region), the inside region including a plurality of first openings 9A-C so as to form a mask pattern, and the outside region being outside the mask pattern; an insulating film 2 formed on the outside region of the conductive thin film 3 (Detailed Description, page 3, paragraph [0021] and FIG. 1);

a conductive support 1f formed on the insulating film 2; a second opening 7 formed in the conductive thin film 3 and the insulating film 2; and a conducting member

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12 which is formed in the second opening 7 and which connects the conductive thin film 3 and the conductive support 1f electrically (pages 3-4, paragraph [0022] and FIG. 2).

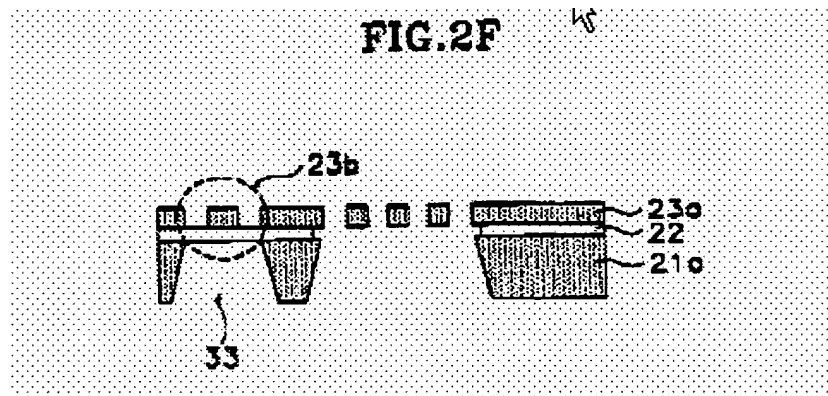


Satoru discloses wherein one of the conductive thin film 3 and the conductive support 1f has a second opening 7 in which the conducting member 12 is formed (FIG. 2) but does not explicitly disclose a second opening in the outside region formed in the conductive thin film.

Kim, however, discloses a stencil mask comprising a conductive thin film 23a having a plurality of first openings; an insulating film 22 formed in a region of the conductive thin film 23a; a conductive support 21 formed on the insulating film 22, wherein one of the conductive thin film and the conductive support has a second opening

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33 formed in the outside region, the second opening being positioned in a region excluding the plurality of first openings (col. 3, line 35 to col. 4, line 14 and FIG. 2F).



Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Satoru and Kim to enable the a second opening in the outside region formed in the conductive thin film of Satoru to be formed and furthermore to improve the quality and/or throughput of the stencil mask manufacturing process (Abstract, Kim).

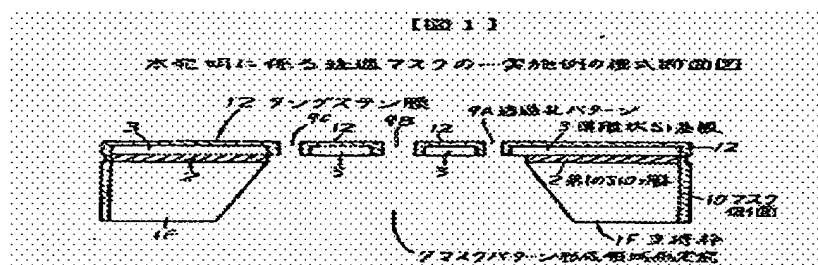
In re claim 15, Satoru discloses that the electrical conductivity of the conducting member 12 (W) is higher than that of each of the conductive thin film 3 (Si) and the conductive support 1f (Si) (Detailed Description, pages 3-4, paragraphs [0021]-[0022]).

In re claim 16, Satoru discloses that the conductive thin film 3 and the conductive support 1f are made of silicon (Detailed Description, page, paragraph [0022]).

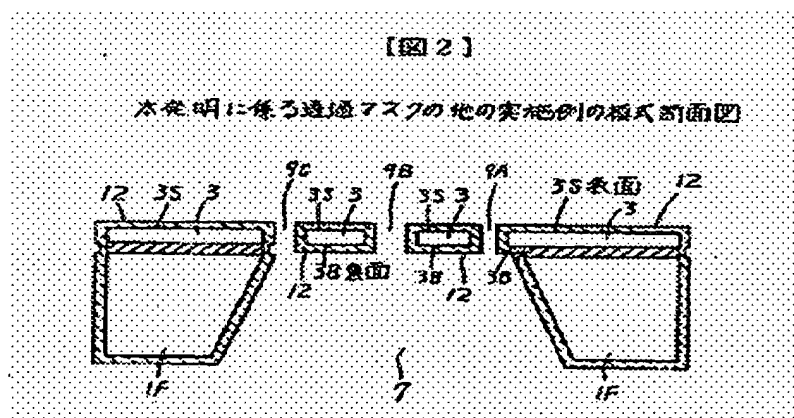
In re claim 17, Satoru discloses that the conducting member 12 is made of tungsten (Detailed Description, page 3, paragraph [0022]).

In re claim 18, Satoru discloses that the stencil mask according to claim 14, further comprising silicon or silicide formed on the surface of the conducting member (FIG. 2).

In re claim 19, **Satoru** discloses a stencil mask comprising: a conductive thin film 3 (Si) having an inside region (middle region) and an outside region (peripheral region), the inside region including a plurality of first openings 9A-C so as to form a mask pattern, and the outside region being outside the mask pattern; an insulating film 2 formed on the outside region (Detailed Description, page 3, paragraph [0021] and FIG. 1);

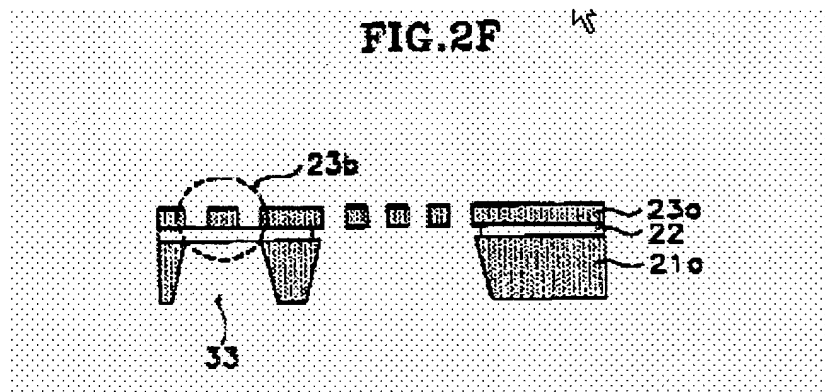


a conductive support 1f formed on the insulating film 2; a second opening 7 formed in the conductive thin film 3 and the insulating film 2; and a conducting member 12 which is formed on the surface of the conductive thin film 3 and in the second opening 7 and which connects the conductive thin film 3 and the conductive support 1f electrically (Detailed Description, pages 3-4, paragraph [0022] and FIG. 2).



Satoru discloses wherein one of the conductive thin film 3 and the conductive support 1f has a second opening 7 in which the conducting member 12 is formed (FIG. 2) but does not explicitly disclose a second opening in the outside region formed in the conductive thin film and the insulating film.

Kim, however, discloses a stencil mask comprising a conductive thin film 23a having a plurality of first openings; an insulating film 22 formed in a region of the conductive thin film 23a; a conductive support 21 formed on the insulating film 22, wherein one of the conductive thin film and the conductive support has a second opening 33 formed in the outside region, the second opening being positioned in a region excluding the plurality of first openings (col. 3, line 35 to col. 4, line 14 and FIG. 2F).



Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Satoru and Kim to enable the a second opening in the outside region formed in the conductive thin film and the insulating film of Satoru to be formed and furthermore to improve the quality and/or throughput of the stencil mask manufacturing process (Abstract, Kim).

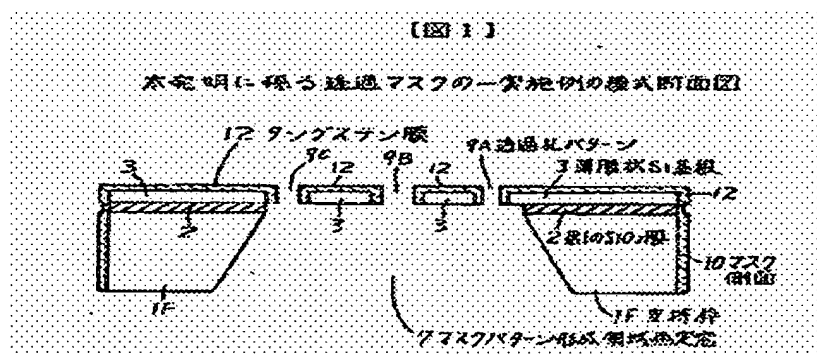
In re claim 20, Satoru discloses that the electrical conductivity of the conducting member 12 (W) is higher than that of each of the conductive thin film 3 (Si) and the conductive support 1f (Si) (Detailed Description, pages 3-4, paragraphs [0021]-[0022]).

In re claim 21, Satoru discloses that the conductive thin film 3 and the conductive support 1f are made of silicon (Detailed Description, page 3 paragraph [0022]).

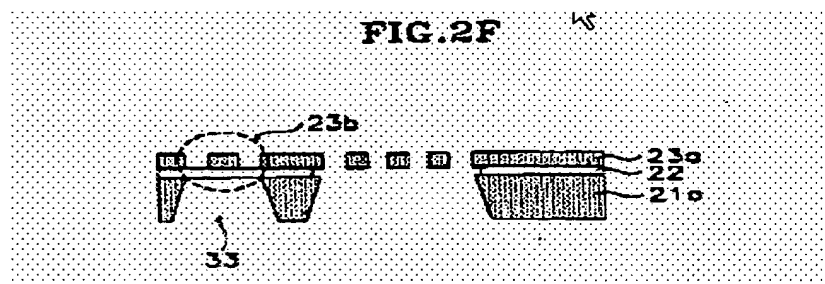
In re claim 22, Satoru discloses that the conducting member is made of tungsten (Detailed Description, page 3, paragraph [0022]).

In re claim 23, Satoru discloses that the stencil mask according to claim 19, further comprising silicon or silicide formed on the surface of the conducting member (FIG. 2).

In re claim 24, Satoru discloses a mask forming substrate comprising: a conductive thin film 3 (Si) having an inside region (middle region) and an outside region (peripheral region); an insulating film 2 (SiO_2) formed on the conductive thin film 3 (Detailed Description, page 3, paragraph [0021] and FIG. 1);



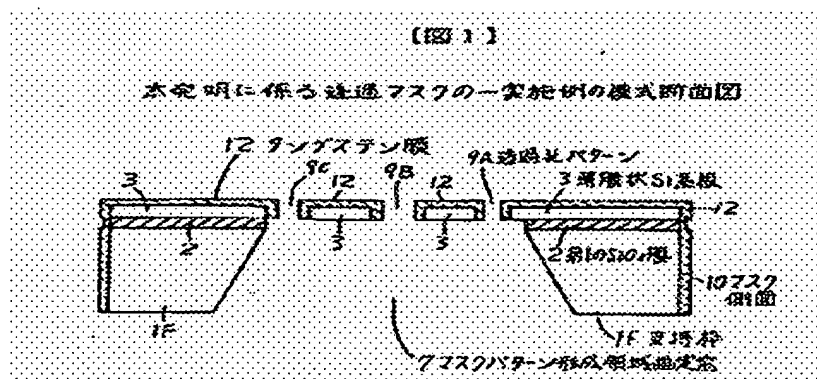
a conductive support 1f formed on the insulating film 2; an opening 7 formed in the conductive support 1f; and a conducting member 12 which is formed in the opening 7



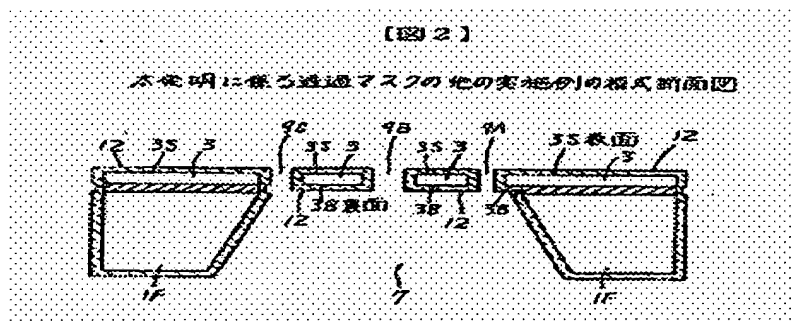
In re claim 25, **Satoru** discloses that the electrical conductivity of the conducting member **12** (W) is higher than that of each of the conductive thin film **3** (Si) and the conductive support **1f** (Si) (Detailed Description, pages 3-4, paragraphs [0021]-[0022]).

In re claim 27, **Satoru** discloses that the conducting member **12** is made of tungsten (W) (Detailed Description, page 3, paragraph [0022]).

In re claim 28, **Satoru** discloses a mask forming substrate comprising: a conductive thin film 3 (Si) having an inside region (middle region) and an outside region (peripheral region); an insulating film 2 (SiO₂) formed on the conductive thin film 3; a conductive support 1f formed on the insulating film 2 (Detailed Description, page 3, paragraph [0021] and FIG. 1);



an opening 7 formed in the conductive thin film 3 and the insulating film 2; and a conducting member 12 which is formed on the conductive thin film 3 and in the opening 7 and which connects the conductive thin film 3 and the conductive support 1f electrically (Detailed Description, pages 3-4, paragraph [0022] and FIG. 2).



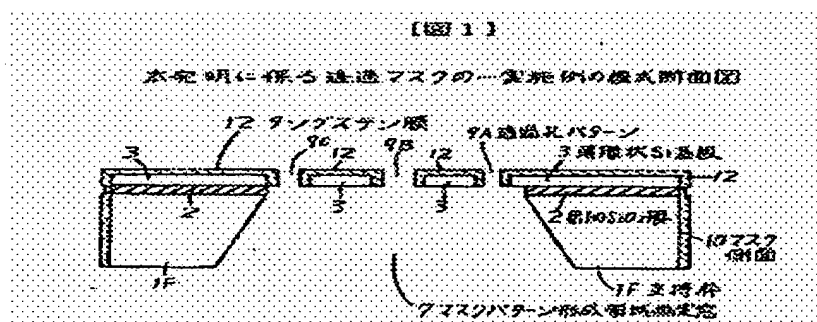
Satoru discloses wherein one of the conductive thin film 3 and the conductive support 1f has a second opening 7 in which the conducting member 12 is formed (FIG. 2) but does not explicitly disclose an opening in the outside region formed in the conductive thin film and the insulating film.

Kim, however, discloses a stencil mask comprising a conductive thin film 23a having a plurality of first openings; an insulating film 22 formed in a region of the conductive thin film 23a; a conductive support 21 formed on the insulating film 22, wherein one of the conductive thin film and the insulating film has an opening 33 formed in the outside region, the second opening being positioned in a region excluding the plurality of first openings (col. 3, line 35 to col. 4, line 14 and FIG. 2F).

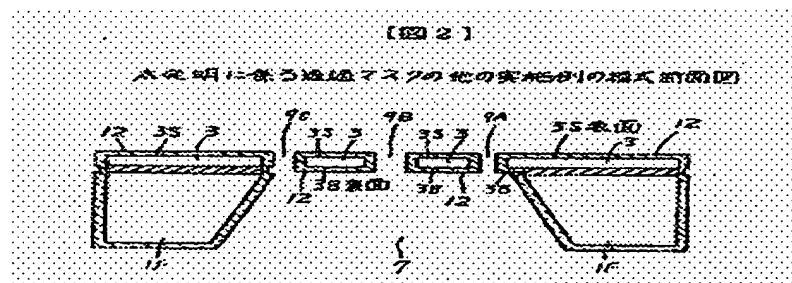


Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Satoru and Kim to enable the opening in the outside region formed in the conductive thin film and the insulating film of Satoru to be formed and furthermore to improve the quality and/or throughput of the stencil mask manufacturing process (Abstract, Kim).

In re claim 35, Satoru discloses a mask forming substrate comprising: a conductive thin film 3 (Si) having an inside region (middle region) and an outside region (peripheral region); an insulating film 2 (SiO_2) formed on the conductive thin film 3 (Detailed Description, page 3, paragraph [0021] and FIG. 1);

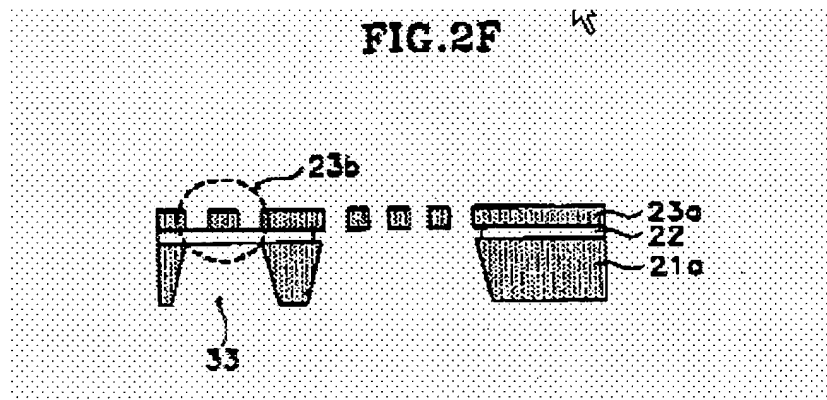


a conductive support 1f formed on the insulating film 2; an opening 7 formed in the conductive thin film 3; and a conductive member 12 which is formed in the opening 7 and which connects the conductive thin film 3 and the conductive support 1f electrically (Detailed Description, pages 3-4, paragraph [0022] and FIG. 2).



Satoru discloses wherein one of the conductive thin film 3 and the conductive support 1f has a second opening 7 in which the conducting member 12 is formed (FIG. 2) but does not explicitly disclose an opening in the outside region formed in the conductive thin film.

Kim, however, discloses a stencil mask comprising a conductive thin film 23a having a plurality of first openings; an insulating film 22 formed in a region of the conductive thin film 23a; a conductive support 21 formed on the insulating film 22, wherein one of the conductive thin film and the conductive support has an opening 33 in the outside region formed in the conductive thin film, the second opening being positioned in a region excluding the plurality of first openings (col. 3, line 35 to col. 4, line 14 and FIG. 2F).



Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Satoru and Kim to enable the opening in the outside region formed in the conductive thin film of Satoru to be formed and furthermore to improve the quality and/or throughput of the stencil mask manufacturing process (Abstract, Kim).

Response to Applicants' Amendment and Arguments

4. Applicant's arguments with respect to claims 1-28 and 35 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khiem D. Nguyen whose telephone number is (571) 272-1865. The examiner can normally be reached on Monday-Friday (8:30 AM - 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

K.N.
November 27th, 2006

HSIEN-MING LEE
PRIMARY EXAMINER

11/27/06